

Dec. 3, 1990

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ACID TANK CONTAINMENT @ 3200
Monday-11-5-90

SUMMARY:

1. The containment pit was leaking. For how long is not known.
2. Some acidic material did escape from the acid tank
3. I have not reported this to DOE at this time.
4. Repairs are ongoing. The total cost of disposal and repair is estimated at:

Two fiberglass containments-----\$24,000.

Contractor work for concrete t&m-----\$ 8,000.

Disposal of rinse water/hazardous waste-----\$12,500.

Repair/replacement of heat exchanger-----\$ 1,500.

Repair/reline of rinse tank-----\$ 8,000.

Stablize slab-----\$ 3,000.

Steel-----\$ 2,500.

TOTAL-----\$58,000.

Conclusion: I am unable to determine that reporting is mandatory. I recommend we do not report.

Detail-Larry Bentley reported to me at about 10:30 A. M. 11-5-90 that there was a possible leak in the 3200 acid tank containment pit. Larry told me that the plastic tubing heat exchanger in the acid tank had ruptured sometime during the weekend. The heat exchanger is fed with 15 PSI steam. The steam and condensate are normally discharged to Metro.

A break in the plastic tubing had allowed the condensate to enter the acid tank and overflow the tank into the containment pit. The amount of overflow is not known (a method of estimating the release is discussed later) but the pit did not have more than a trace of liquid in it. This observation made by Larry Bentley suggested the pit may be leaking.

Upon close examination a separation was found where the floor of the pit and the northwest wall join, of about 1/2" x 3'. To repair the joint required the removal of the rinse tank. During the inspection and pumping of the rinse tank it was observed the tank was leaking from a point in the bottom of the tank. The rate of leak was approximately one drip every 5 seconds. I called a meeting of all the people involved to evaluate the damage and proposed repair. The minutes of that meeting are attached.

The resulting consensus was; 1. Tests indicate the acid tank is very near its original acid percent. 2. The slow seepage leak of the rinse tank was well below the "reportable quantity" for the EPA hazardous materials list (1000 pounds of Nitric Acid). 3. Probably little or no danger to the environment had occurred. This is the same information I reported to you that same day. You told me to report the incident if it is required to do so. I then called Steve Sagstad of Sweet Edwards and spoke to their hazardous waste expert. After I described the situation to them, they told me that typically this kind of thing is not reported by industry.

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They said they would check the regulations and if they found any rule that made it necessary to report this, they would call me back. At this time they have not contacted me. I also called the outside engineering firm Ely Environmental for assistance in a repair design and some additional council on whether to report a problem as small as this. Mr. Ely said he agreed with the proposed design for the repair and said he had talked to several people at the Department of Ecology and could not find anyone who could give him a "yes or no" answer on reporting. Everyone at DOE was very non-committal. In our own contingency plan produced for us by the consultant firm ERM-Northwest, Inc. (enclosed) there is a statement on page #2-1 that says to report a release to the environment above the reportable quantity and on page #4-1 to report all spills to DOE. I would say it is a judgement call. I don't feel any danger to health exists from what has happened. Do you want to involve the lawyers on any legal question?

TEST:

In an effort to try and determine how much if any acid escaped from the acid tank overflow, I had our lab set-up a simulation with acid in a beaker and very slowly added water. After 24 hours the beaker was filled to overflowing, but the two liquids did not mix so it is possible no acid escaped the acid tank, only condensate from the heat exchanger. The test procedure and report are also attached.

J. Brown

AKC-0014567

EXPERIMENT FOR OVERFLOW OF ACID TANK

In conclusion to experiment 111490GAS set up to determine the quantity and concentration of a possible acid tank overflow due to condensation from the heat exchangers, the procedures and results are as follows: In the lab an actual representation of a situation as described above was set up to simulate the effect.

A 50 ml pipette was filled with water and elevated above a 180 ml beaker to produce a gravitation flow system. The 180 ml beaker was then filled with a nitric acid mixture (sample taken directly from an acid tank at 3200). A surgical tubing was then secured in place between the pipette and the beaker. At this point the valve of the pipette was cracked open to produce a slow drip affect that would mimic the condensation rate of the heat exchangers. The pipette was filled four times over a 60 hour period.

The results showed that the acid and the water separated out into four distinct regions.

The top layer in which we are concerned was a very diluted acid as apparent from the very light green appearance in comparison to the dark green acid from the tank at 3200. The PH taken of the initial acid was 1.0, while the PH of the overflow from the beaker was 3.0 according to the ColorpHast Indicators used.

This, in effect, shows that a hypothesis can be drawn to conclude that the water will separate from the acid tank at a much lower concentration than the acid contained in the tank with the majority of the contents being water. The concentration of the discharge cannot be determined on the grounds that the tank level and concentration have to be known.

Meeting Minutes

11-5-90

Re: Main acid tank observations

Meeting called by J.Brown with M.Bruntz, Larry Bentley, Wayne Larsen, Ron Rutledge and Greg Speer attending.

Discussed chain of events: heat exchanger to main acid tank ruptured, adding water to tank to overflow level and Larry Bentley's observations that no fluid was still visible in revetment under tank.

J.Brown discussed reporting requirements of nitric acid (i.e. > 1000lbs.) and determined that fluid loss was not near 1000lb. reporting limit for nitric acid or 5000lb. limit on ammonium bi-fluoride (per W.Larsen).

Larry Bentley was directed to inspect situation and report to J.Brown Re: conditions and call second meeting to discuss findings and plan of action to clean-up mess.

Second Meeting

11-5-90

Larry Bentley's observations were: the main rinse tank was leaking and that the revetment was leaking under the rinse tank. Per J.Brown next actions were: instruct W.Larsen to schedule outside firm to come and remove contents of main rinse tank and M.Bruntz schedule to have rinse tank removed and repaired. Further observation and recommendations Re: revetment repair will commence from there.